WHAT IS CLAIMED IS:

1. A method for semi-continuous culture of plant cells in a nutrient medium, the method comprising monitoring pH of the medium to monitor expression of an expression product made by the cells, wherein the expression product is encoded by a polynucleotide under the control of an inducible promoter.

2. The method of claim 1, wherein the plant cells comprise a heterologous expression cassette comprising a polynucleotide encoding the expression product operably linked to an inducible promoter.

3. The method of claim 2, wherein the promoter is an α-amylase promoter.

4. The method of claim 3, wherein the α-amylase promoter is RAmy3D.

5. The method of claim 2, wherein the polynucleotide encoding the expression product is a human α_1-antitrypsin polynucleotide.

6. The method of claim 5, wherein the human α_1-antitrypsin gene is optimized for expression in plant cells.

7. The method of claim 1, further comprising the step of exchanging the medium when the pH is above 6.5.

8. The method of claim 7, wherein the step of exchanging the medium is carried out when the pH is above 7.0.

9. The method of claim 7, wherein the step of exchanging the medium is carried out by replacing an induction medium with a growth medium.

10. The method of claim 1, wherein the plant cell is a rice cell.

11. The method of claim 1, further comprising measuring oxygen uptake rate of the plant cells.

12. The method of claim 11, further comprising exchanging a growth medium with an induction medium when the oxygen uptake rate is above 2.0 mmol O_2/Lhr.

13. The method of claim 12, wherein the step of exchanging the growth medium with the induction medium when the oxygen uptake rate is above 5.0 mmol O_2/Lhr.

14. A method for production of a recombinant expression product using semi-continuous culture of transgenic plant cells comprising a heterologous expression cassette comprising a polynucleotide encoding the expression product operably linked to an inducible promoter, the method comprising the step of exchanging an induction medium with a growth medium when the pH of the medium is above 6.5.

15. The method of claim 14, wherein the transgenic plant cells are rice cells.

16. The method of claim 15, wherein the polynucleotide encoding the expression product is a human α_1-antitrypsin polynucleotide.

17. The method of claim 14, further comprising measuring oxygen uptake rate of the plant cells and replacing the growth medium with the induction medium when the oxygen uptake rate is above 2.0 mmol O_2/Lhr